

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION OF AIR QUALITY

**General Instructions for the
2002 ACTUAL EMISSIONS INVENTORY**

IMPORTANT

Please read the entire package and the instructions for each form before beginning.

Be sure to keep a copy of the completed inventory and calculations for your own records, while sending the original forms to the Division of Air Quality.

JANUARY 2003

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Send your completed registration form and total registration fee by February 12 to:

Emission Inventory Workshop
Division of Air Quality
PO Box 144820
Salt Lake City, Utah 84114-4820
(801) 536-4187

GENERAL INSTRUCTIONS FOR THE CRITERIA & HAZARDOUS AIR POLLUTANT INVENTORY

EMISSION INVENTORY INFORMATION MUST BE SUBMITTED BY:

- Any source that emits or is allowed to emit 100 tons per year or more of sulfur oxides (SO_x), oxides of nitrogen (NO_x), PM₁₀, volatile organic compounds (VOC), or carbon monoxide (CO);
- Any source that emits or is allowed to emit 5 tons per year or more of lead;
- Any source that emits or has the potential to emit 10 tons per year of any hazardous air pollutant (HAP) listed in Table IV of the general inventory instructions or 25 tons per year of a combination of any HAPs;
- Any source located in Davis, Salt Lake, Utah or Weber County that emits or is allowed to emit 25 tons per year or more of a combination of PM₁₀, SO_x, and NO_x;
- Any source located in Davis, Salt Lake, Utah or Weber County that emits or is allowed to emit 10 tons per year or more of VOC;
- Any Title V (Part 70) source.

2002 INVENTORY REQUIREMENTS

EPA recently changed the federal requirements for state inventory data submittals. The amount of detail, the reporting time frames, and - in some cases - the pollutants that are required to be included for point sources have all been changed.

The following table summarizes what is needed for the 2002 inventory submittal. The corresponding forms have been provided in this packet. A copy of the new rule is available at:
<http://www.epa.gov/ttn/chief/cerr/index.html>.

2002 Source Category Requirements

Source Category	Data Requested
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<ul style="list-style-type: none"> •Sources with ≥ 100 tons SO_x, PM₁₀, NO_x, VOC, or CO; •Sources with ≥ 5 tons lead; and •Title V sources in Davis, Salt Lake, Utah, or Weber County with ≥ 10 tons VOC or ≥ 25 tons NO_x, SO_x, and PM₁₀ combined. 	<p>Submit detailed information on the inventory report forms for NO_x, SO_x, PM₁₀, VOC, CO, and Lead; and</p> <p>Totals of individual chargeable HAPs and certain other chargeable pollutants* that are NOT reported as VOCs or PM₁₀ submitted on Form B. (HINT: Keep a copy of your calculations onsite for inspectors.)</p>
Non-title V sources in Davis, Salt Lake, Utah, or Weber County with ≥ 10 tons VOC or ≥ 25 tons NO _x , SO _x , and PM ₁₀ combined.	<p>No HAPs data is requested.</p> <p>Submit detailed information on inventory report forms for SO_x, NO_x, PM₁₀, VOC, CO, and Lead.</p>
Other Title V Sources statewide	<p>Submit site totals of individual chargeable criteria*, chargeable HAPs, and other chargeable pollutants on</p> <p>Form B (see enclosed tables "Hazardous Air Pollutants", "Chargeable Criteria Pollutants", and "Other Chargeable Pollutants" identifying chargeable emissions).</p> <p>Forms A and B are the only forms required for this category of sources.</p> <p>Only report HAPs that are NOT reported as PM₁₀ or VOCs.</p>

*Chargeable criteria pollutants include NO_x, SO_x, PM₁₀, Lead, and VOC. CO is NOT a chargeable pollutant.

ALSO OF NOTE:

- For all sources: PM_{2.5} and ammonia data are NOT currently required.
- For major sources and Title V sources: Only totals of individual Hazardous Air Pollutants NOT reported as PM₁₀ or VOCs, are required.

HOW TO UPDATE YOUR INFORMATION

Introductory Emissions Inventory Workshop

Wednesday, February 19 - 9 a.m. to noon
Department of Environmental Quality
168 North 1950 West – Room 101
Salt Lake City.

This basic workshop* is designed to help you understand the requirements and answer your questions about completing your Annual Emissions Inventory. The agenda will include:

Purpose of the inventory	Inventory Requirements
Explanation of forms	Description of new/proposed MACTs
New Federal Comprehensive	Basic sample calculations
Question and Answer session	

A \$15 registration fee is being charged to cover materials. To register, complete the form below. Then, either mail it (and your check) beforehand or bring it (and your check) to the workshop.

A pre-registration RSVP is requested so that adequate materials are on hand. Reserve your spot by e-mailing dmcmurtr@utah.gov or calling (801) 536-4187 by February 12.

**If you are interested in a more advanced workshop, including emission estimations specific to your industry, please contact Carol Nielsen at (801) 536-4073.*



Company:	Name:	
Mailing Address:	Title:	
City:	Phone:	
Zip:	E-mail	
Registration Fee/person - \$15		\$15
In addition to me, the following will be attending		
Name:	Title	\$
Name:	Title	\$
Name:	Title	\$
Name:	Title	\$
Total Registration Fee – Check Payable to UDEQ		\$

Form #	Form Name	Purpose
F14	Vapor Degreaser	VOC emissions from degreaser tanks.
F15a	Engines (<i>engines other than off-highway mobile sources</i>)	Emissions from engines such as turbines and generators.
F15b	Engine Stack	Stack information associated with F15a.
F16	<i>Information previously submitted on this form should be provided on F15a Engines</i>	
F17	Loading Racks - Refining/Production	VOC emissions from loading racks.
F18a	Internal Floating Roof Storage Tanks	VOC emissions from Internal Floating Roof storage tanks.
F18b	External Floating Roof Storage Tanks	VOC emissions from External Floating Roof storage tanks.
F19a	Vertical Fixed Roof Storage Tanks	VOC emissions from Vertical Fixed Roof storage tanks.
F19b	Horizontal Fixed Roof Storage Tanks	VOC emissions from Horizontal Fixed Roof storage tanks.
	Supplement to F18 & F19	
F20a	Refinery Fugitive VOC Emissions	Fugitive VOC emissions from refinery processes.
F20b	Refinery Fugitive VOC Emissions Using Correlation Equations	Include Supplement F20b to document monitored components.
F22	Bakery VOC Emissions	VOC emissions from baked bread products.

Companies that have filed an inventory in the past have been sent a copy of last year's report. These should be used to prepare the 2002 report. Remember, the requested emission information should be for the past calendar year – from January 1 through December 31, 2002.

The data can either be modified or verified as correct. To modify your data:

- Cross out the old data.
- Write in the new data above it
- Correct any historical information that is incorrect

For new or significantly changed data, use the space provided at the bottom of each form.

For any data field that is blank, fill in the missing information.

For any data field that does not apply, write N/A (not applicable.)

If a form is blank and does not apply to your company, simply disregard it.

ONCE YOUR FORMS ARE COMPLETE

Make a COPY of the report for your records and submit the ORIGINAL to:

ATTN: Emission Inventory
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, UT 84116

The completed inventory report must be submitted by April 15, 2003. The date cannot be extended.

KEEP IN MIND

It is important to be accurate and concise and to submit your report by the deadline. Failure to do so constitutes a violation and may be subject to penalties.

The information you submit is not considered confidential. Under state and federal law, it becomes a matter of public record. The process information and the emissions data will be forwarded to EPA and incorporated in the National Emission Inventory (NEI), a public accessible database.

FOR MORE INFORMATION

If you did not receive a packet or you need instructions or forms which are not provided in your report, visit our website at

http://www.airquality.utah.gov/inventory/forms_list.htm . The inventory link allows you to print or download the information you need in PDF

format,

If you do not have Internet access, contact Deborah McMurtrie at (801) 536-4187 and she will mail out the requested forms. A list of all inventory forms is provided at the end of this booklet (Table VII).

PM_{2.5}

Information on this pollutant is NOT being gathered.

Lead

Elemental Lead (Pb) is to be included on various forms as a criteria pollutant, while Lead Compounds would be reported as HAPs.

Chargeable Hazardous Air Pollutants (HAPs)

Chargeable HAP emissions NOT reported as PM₁₀ or VOCs are being requested from major sources and any Title V sources. The total of each individual chargeable HAP should be submitted on Form B.

EPA has developed HAP emission factors for some types of processes. Please check a current AP-42 document for factors applicable to your company. AP-42 emission factors can be found on the Internet at: <http://www.epa.gov/ttn/chief/ap42etc.html>. If the total amount emitted by the source of an individual HAP is below the level listed in Table IV, HAPs De Minimus Emissions Levels. If the table indicates that the HAP is not chargeable, reporting of that HAP is not required. Sources must keep the calculations used to derive the emission totals for compliance purposes.

Other chargeable pollutants

These are air pollutants that are neither criteria pollutants nor hazardous air pollutants, yet are federally regulated and reportable. They include the following, and are to be reported on form B by major sources and all Title V sources:

OTHER CHARGEABLE POLLUTANTS

2-(2-Butoxyethoxy)-Ethanol	Hydrogen sulfide
2,4-Methypentanone	Municipal solid waste landfill Non-methane organic compounds
2-Butoxy-Ethanol	Sulfuric Acid
Dioxin/furan (total tetra-through octachlorinated dibenzo-p-dioxins and dibenzofurans)	Sulfuric acid mist

Form #	Form Name	Purpose
F2	Process/Fuel Information	F2, F3, and F4 together comprise a general set of reporting forms, suitable for any company for which there is no specific reporting form suitable for their processes.
F3	Emissions for Controlled and Uncontrolled Processes	
F4	Stack Information (<i>stacks associated with F2 and F3</i>)	
F5	Operating Time	Central location for listing process times
F6a	Fugitive Emissions (<i>not exhausted through stacks or control facilities</i>)	Uncontrolled or uncontrollable emissions from a process.
F6b	Fugitive Emissions - Solvents or Coatings (<i>including paint booths exhausting through a vent or stack</i>) Vapor Degreasers use F14.	Uncontrolled or uncontrollable VOC emissions specifically from a solvent or coating process.
F6c	Fugitive Spray Booth Stack Information	For paint booth stacks associated with F6b.
F7	Sand & Gravel Operations	PM10 emissions from crushing operations.
F8	Concrete Batch Plant	PM10 emissions from concrete batch plants.
F9a	Asphalt Plant	Emissions from Asphalt Plants
F9b	Asphalt Plant Stack	Stack information associated with F9a.
F10	Cutback Asphalt Plant	Emissions from Asphalt Plants
F11a	Fugitive Dust - Roads	PM10 emissions from road traffic on company-used/owned roads.
F11b	Fugitive Dust - Storage Piles	PM10 emissions from company's storage piles.
F12	Off-Highway Mobile Sources	Emissions from company vehicles other than from their public thoroughfare usage.
F13	Quarry & Mining Activities	Emissions from drilling and blasting.

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
1582098	Trifluralin	0.00	0.00
108054	Vinyl acetate	500.00	0.25
593602	Vinyl bromide	466.84	0.23
75014	Vinyl chloride	91.91	0.05
	Vinylidene chloride (1,1-Dichloroethylene)	424.40	0.21
1330207	Xylenes (isomers and mixture)	500.00	0.25

Table V
Non-Criteria/Non-HAP Regulated Pollutants
De Minimis Emissions Levels

Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
2-Butoxy-Ethanol	0.00	0.00
2-(2-Butoxyethoxy)-Ethanol	0.00	0.00
Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
2,4-Methypentanone	0.00	0.00
Dioxin/Furans	0.00	0.00
Fluorides	53.05	0.03
Municipal solid waste landfill emissions	500.00	0.25
Total reduced sulfur	0.00	0.00
Sulfuric acid (hydrogen sulfide)	21.22	0.01
Sulfuric acid mist	21.22	0.01

Table VII
Inventory forms

Form #	Form Name	Purpose
A	Company/Site Information	Current or updated company name, address, phone, contact, and site information.
B	Summary - Total Emissions by Site (tons/year)	Provides a grand total of all criteria emissions, as well as HAP and other regulated pollutants associated with the company from all sites.

Fluorides	Total reduced sulfur
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Breakdown emissions

The total emissions from each process are required to be reported. This includes any emissions that occur due to a breakdown, whether or not the breakdown is reported to DAQ. Please enter the total emissions on the forms and indicate what percentage of the total were due to breakdowns. The "other Title V" sources listed in the "Source Category" table on page 1 that are not submitting detailed data must include breakdown emissions in the individual pollutant totals on Form B.

Previously Submitted Inventory Data

Previously submitted inventory data can be obtained by contacting Deborah McMurtrie by telephone at (801) 536-4187 or by E-mail at Dmcmurtr@Utah.gov.

Medical Waste Incinerators

These facilities now are subject to Federal New Source Performance Standards (NSPS), and the Operating Permits rule R306-415. This includes the submittal of a complete inventory of air emissions from all emission sources at the facility, not just from the incinerator.

Use the following factors to calculate emissions from the medical waste incinerator.

Medical Waste Incinerator
Emission Factors

Pollutant	Emission factors, lb emitted per lb waste charged					
	Combustion Control Gas Residence Time			Wet Scrubbers	Dry Scrubber without carbon	Dry Scrubber with carbon
	1/4 Second	One Second	Two Seconds			
Dioxin/Furan	1.93E-07	4.45E-08	3.65E-09	4.26E-10	3.65E-09	7.04E-11
D/F:TEQ	3.96E-09	9.09E-10	7.44E-11	1.01E-11	7.44E-11	1.68E-12
CO	8.12E-03	3.45E-03	1.52E-04	1.52E-04	1.52E-04	1.52E-04
PM10	4.47E-03	2.38E-03	1.49E-03	see notes	1.49E-05	1.49E-05
HCl	2.24E-02	2.24E-02	2.24E-02	3.54E-05	4.37E-04	4.37E-04
Pb	3.80E-05	3.80E-05	3.80E-05	3.32E-06	1.31E-07	1.31E-07
SO2	3.20E-04	3.20E-04	3.20E-04	3.20E-04	3.20E-04	3.20E-04
Hg (see notes)	3.70E-05	3.70E-05	3.70E-05	1.31E-06	3.70E-05	1.66E-06
Cd	4.10E-06	4.10E-06	4.10E-06	4.60E-07	2.60E-08	2.60E-08
NOx	1.51E-03	1.51E-03	1.51E-03	1.51E-03	1.51E-03	1.51E-03

Notes:

Emissions of pollutant=[Tons/yr of waste] x [Emission factor of the pollutant] x [(1 - efficiency)/100]

Wet Scrubber Efficiency for PM10: Low: 5.66E-4, Moderate: 2.08E-4,

High Efficiency 1.04E-4

With waste separation, the Hg emission factor for combustion control and dry scrubber without carbon would be 1.10E-5.

For any questions about the Operating Permits program as it applies to these facilities, please contact Dave Beatty at (801) 536-4060.

INVENTORY FORMS

Form A

Form A requires company, site, and contact information. Please provide the current information for your company, site(s), and contacts.

Form B: SUMMARY -Total Emissions by Site

Please provide a summary of facility emissions by site on Form B. In addition to criteria pollutants, this form is to be used for chargeable HAPs and other chargeable pollutants by major sources and all Title V sources.

If your source is in the “other Title V source” category as listed in the “Source Category Requirements” table on page 2, only submit Form A and a Form B for each site, and do not include tailpipe or CO emissions in the pollutant totals. Only list HAPs that are NOT reported as PM₁₀ or VOCs. Remember to keep the calculations of the totals for compliance purposes.

Form 5 - Operating Hours

This form is designed to reduce repetitive reporting of the operating hours for a site. If all processes at a site have the same operating hours, enter that information on F5 and write “All Processes” in the Description field.

Form F18a-F19b

Note that some fields on the storage tank forms are optional. If the products stored are not listed in Tables 7.1-2, 3 & 5 of AP-42, the Supplement Form 18-19 should be used.

Note:

The U.S. EPA recommends the use of the latest version of TANKS (currently version 4.09) for the estimation of emissions from storage tanks. TANKS is designed for use by local, state, and federal agencies, environmental consultants, and others who need to calculate VOC emissions from organic liquid storage tanks.

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
75445	Phosgene	8.49	0.00
7803512 *	Phosphine	8.91	0.00
7723140*	Phosphorus	2.12	0.00
85449	Phthalic anhydride	129.44	0.06
1336363	Polychlorinated biphenyls (Aroclors)	10.61	0.01
	Polycyclic aromatic hydrocarbons	0.00	0.00
	Polycyclic Organic Matter	0.00	0.00
106503	p-Phenylenediamine	2.12	0.00
123386	Propionaldehyde	0.00	0.00
114261	Propoxur (Baygon)	10.61	0.01
78875	Propylene dichloride (1,2-Dichloropropane)	500.00	0.25
	Propylene Glycol Butyl Ether	0.00	0.00
107982	Propylene Glycol Monomethyl Ether	500.00	0.25
75569	Propylene oxide	500.00	0.25
106423	p-Xylenes	500.00	0.25
91225	Quinoline	0.00	0.00
106514	Quinone	9.34	0.00
82688	Quintobenzene	10.61	0.01
	Radionuclides (including radon) /5/	0.00	0.00
7782492	Selenium	4.24	0.00
	Selenium Compounds	4.24	0.00
7791233	Selenium Oxychloride	4.24	0.00
100425	Styrene	500.00	0.25
96093	Styrene oxide	500.00	0.25
7664939	Sulfuric Acid, Nickel(2+) Salt (1	7.07	0.00
	TCDD	0.00	0.00
	TCDF	0.00	0.00
127184	Tetrachloroethylene (Perchloroethylene)	500.00	0.25
25322207	Tetrachloroethane	0.00	0.00
7550450*	Titanium tetrachloride	0.00	0.00
108883	Toulene	500.00	0.25
26471625	Toluene-2,4-Diisocyanate	0.56	0.00
8001352	Toxaphene (chlorinated camphene)	10.61	0.01
12002481	Trichlorobenzene	0.00	0.00
79016	Trichloroethylene	500.00	0.25
121448	Triethylamine	87.00	0.04
	Triethylene Glycol	0.00	0.00

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
624839	Methyl isocyanate	1.00	0.00
502396	Methyl Mercuric Dicyanamide	0.21	0.00
80626	Methyl methacrylate	500.00	0.25
1634044	Methyl tert butyl ether	500.00	0.25
75092 *	Methylene chloride (Dichloromethane)	500.00	0.25
101688	Methylene diphenyl diisocyanate	1.08	0.00
108907	Monochlorobenzene	500.00	0.25
108383	m-Xylenes	1.58	0.00
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)	500.00	0.25
91203	Naphthalene	500.00	0.25
7440022	Nickel	31.83	0.02
	Nickel Compounds	2.12	0.00
90040	Nitrotriacetic Acid Nickel(+2) H440022	0.00	0.00
34831033	Nitrotriacetic Acid, Antimony(+3)	0.00	0.00
46242448	Nitrotriacetic Acid, Beryllium S	0.00	0.00
18432547	Nitrotriacetic Acid, Cobalt (+3)	0.00	0.00
23319519	Nitrotriacetic Acid, Manganese S	0.00	0.00
18983727	Nitrotriacetic Acid, Cadmium (+2)	0.00	0.00
98953	Nitrobenzene	106.10	0.05
62759	N-Nitrosodimethylamine	0.00	0.00
59892	N-Nitrosomorpholine	0.00	0.00
684935	N-Nitroso-N-methylurea	0.00	0.00
90040	o-Anisidine	10.61	0.01
	o-Cresol	466.84	0.23
95534	o-Toluidine	186.74	0.09
95476	o-Xylenes	500.00	0.25
50000	Oxymethylene	5.85	0.00
56382	Parathion	2.12	0.00
	p-Cresol	466.84	0.23
106467	P-DICHLORO	500.00	0.25
82688	Pentachloronitrobenzene (Quintobenzene)	10.61	0.01
87865	Pentachlorophenol	10.61	0.01
127184	Perchloroethylene	500.00	0.25
108952	Phenol	403.18	0.20
64006	Phenol, 3-(1-Methylethyl)-Methylca	0.00	0.00
100414	Phenylethane	500.00	0.25
62384	Phenylmercuric Acetate	0.21	0.00

TANKS is a Windows-based computer software program that computes estimates of volatile organic compound (VOC) emissions from fixed- and floating-roof storage tanks. TANKS is based on the emission estimation procedures from Chapter 7 of EPA's Compilation Of Air Pollutant Emission Factors (AP-42), plus recent updates from the American Petroleum Institute. A user's manual, included with the program, explains the many features and options of TANKS. The program includes on-line help for every screen.

The software can be downloaded from the EPA web page in a ZIP format from: <http://www.epa.gov/ttn/chief/software/tanks/index.html>.

Be aware that, if you are required to submit detailed data, you must include the full output of TANKS 4.09 with your emissions inventory submittal.

Form F20b

Form F20b has been formatted for refinery fugitive emissions resulting from the correlation equation method. Supplement Form 20b is provided for documenting each of the monitored components.

Ozone Season (June 1 through August 31)

Applicability (R307-158-1)

Since Salt Lake and Davis Counties are now maintenance for ozone, **NO Ozone Season Inventory is required for 2002.**

Portable Equipment

For equipment such as asphalt plants, concrete batch plants, portable generators, and associated support equipment, which may operate in multiple locations during the course of a calendar year is reported on the blank forms available on the UDAQ web site at: http://www.deq.state.ut.us/EQAIR/Inventory/Forms_List.htm or you may request a copy from Deborah McMurtrie at (801) 536-4187. Each separate location or county that a plant or crusher is moved to in the course of the year must be reported separately. The corresponding county of operation should be entered in the county field.

Non-major Title V portable sites outside Davis, Salt Lake, Weber, and Utah counties are to submit only totals of chargeable pollutants on Form B. If your equipment operated at multiple sites during 2002, you will need to complete a Form B for each site. Only include chargeable HAPs and other chargeable pollutants if they are NOT reported as PM₁₀ or VOCs.

DEFINITIONS

Estimate Code means emission estimate method codes required by EPA for reporting purposes. A valid method code of quantifying actual

emissions is required wherever an emission estimate appears on a form. The valid method codes are listed in Table II of this document. These are the only codes which will be accepted.

Facility is machinery, equipment, structures of any part or accessories thereof, installed or acquired for the primary purpose of controlling or disposing of air pollution. It does not include an air conditioner, fan, or other similar device for the comfort of personnel.

Fugitive Emissions are emissions from an installation or facility which are neither passed through an air cleaning device nor vented through a stack or could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

NESHAP Source is any stationary source of any of the 188 hazardous pollutants listed in §112(b)(1) of the Clean Air Act for which the EPA Administrator, under the authority of §112(d), has adopted an emissions standard that is published in 40 CFR Part 61 or Part 63. These 188 pollutants were listed by Congress because it determined that emissions of those hazardous air pollutants may individually, or in aggregate, present significant risks to public health in urban areas. Once a pollutant is regulated under a NESHAP, it is regulated for all sources of that pollutant.

NSPS Source is any stationary source of pollution for which the Administrator of EPA adopted a national standard that is published in 40 CFR Part 60. These categories of sources were established because it was determined the category contributed significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.

Percentage of Annual Hours of Operation is the percent of the total yearly operating activity which occurs during each calendar month. Operating hours are now being reported collectively on form F5 as opposed to on each individual form to reduce repetitive reporting.

SCC means Source Classification Code. These codes are established by EPA. Theoretically, an SCC represents a unique process or function within a source category associated with an emission point. SCCs can be downloaded from the EPA OQAPS web site:
<http://www.epa.gov/ttn/chief/codes/index.html#scc>

Source is any structure, building, facility, or installation which emits or may emit any air pollutant subject to regulation under the Clean Air Act and which is located on one or more continuous or adjacent properties and which is under the control of the same person (or persons under

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
	Glycol ethers	0.00	0.00
112072	Glycol Monobutylether Acetate	0.00	0.00
76448	Heptachlor	1.06	0.00
118741	Hexachlorobenzene	0.04	0.00
87683	Hexachlorobutadiene	4.46	0.00
77474	Hexachlorocyclopentadiene	2.33	0.00
67721	Hexachloroethane	205.83	0.10
822060	Hexamethyl phosphoramidate	0.00	0.00
680319	Hexamethylene-1,6-diisocyanate	0.72	0.00
110543	Hexane	500.00	0.25
108101	Hexone	0.00	0.00
107415	Hexylene Glycol	500.00	0.25
302012	Hydrazine	0.28	0.00
7647010*	Hydrochloric Acid	118.58	.06
74908*	Hydrocyanic acid	73.03	0.04
74908*	Hydrofluoric acid	36.36	0.02
7647010*	Hydrogen Chloride	118.58	0.06
74908	Hydrogen Cyanide	73.03	0.04
7664393*	Hydrogen fluoride	36.36	0.02
123319	Hydroquinone	42.44	0.02
78591	Isophorone	442.68	0.22
98828	Isopropylbenzene AKA-Cumene	500.00	0.25
	Lead Compounds	0.00	0.00
58899	Lindane (all isomers)	10.61	0.01
74884	Iodomethane	0.00	0.00
	M/P Xylene	0.00	0.00
108316	Maleic anhydride	21.22	0.01
7439965	Manganese	4.24	0.00
	Manganese Compounds	4.24	0.00
108394	m-Cresol	466.84	0.23
1600277	Mercuric Acetate	0.21	0.00
21908532	Mercuric Oxide	0.21	0.00
7439976*	Mercury	0.21	0.00
	Mercury Compounds	0.21	0.00
67561	Methanol	500.00	0.25
72435	Methoxychlor	212.20	0.11
151382	Methoxyethylmercuric Acetate	0.21	0.00
74839	Methyl bromide (Bromomethane)	82.76	0.04
74873	Methyl chloride (Chloromethane)	500.00	0.25
71566*	Methyl chloroform (1,1,1-Trichloroethane)	500.00	0.25
71556	Methyl ethyl ketone (2-Butanone)	500.00	0.25
60344	Methyl hydrazine	0.40	0.00
74884	Methyl iodide (Iodomethane)	254.64	0.13
108101	Methyl isobutyl ketone (Hexone)	500.00	0.25

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
84742	Dibutylphthalate	106.10	0.05
111444	Dichlorethyl ether (Bis(2-chloroethyl)ether)	500.00	0.25
25321226	Dichlorobenzene	500.00	0.25
75092	Dichloromethane	500.00	0.25
62737	Dichlorvos	19.10	0.01
111422	Diethanolamine	42.44	0.02
64675	Diethyl sulfate	0.00	0.00
111466	Diethylene Glycol	0.00	0.00
111900	Diethylene Glycol Monoethyl Ether	0.00	0.00
60117	Dimethyl aminoazobenzene	0.00	0.00
124174	Diethylene Glycol Monoethyl Ether A	0.00	0.00
60117	Dimethyl aminoazobenzene	0.00	0.00
79447	Dimethyl carbamoyl chloride	0.00	0.00
68122	Dimethyl formamide	500.00	0.25
131113	Dimethyl phthalate	106.10	0.05
77781	Dimethyl sulfate	11.03	0.01
34590946	Dipropylene Glycol Methyl Ether	500.00	0.25
	Dipropylene Glycol Monomethyl Ether	0.00	0.00
100425	Ethenylbenzene	0.00	0.00
140885	Ethyl acrylate	141.40	0.07
100414	Ethyl benzene	500.00	0.25
51796	Ethyl carbamate (Urethane)	0.00	0.00
75003	Ethyl chloride (Chloroethane)	500.00	0.25
106934	Ethylene dibromide (Dibromoethane)	0.00	0.00
107062	Ethylene dichloride (1,2-Dichloroethane)	500.00	0.25
107211	Ethylene glycol	500.00	0.25
111762	Ethylene Glycol Monobutyl Ether	0.00	0.00
110496	Ethylene Glycol Monomethyl Ether A	0.00	0.00
122996	Ethylene Glycol Monophenyl Ether	0.00	0.00
2807309	Ethylene Glycol Monopropyl Ether	0.00	0.00
151564	Ethylene imine (Aziridine)	18.67	0.01
75218	Ethylene oxide	12.73	0.01
96457	Ethylene thiourea	0.00	0.00
75343	Ethylidene dichloride (1,2-Dichloroethane)	500.00	0.25
	Fine mineral fibers	21.22	0.01
50000	Formaldehyde	5.85	0.00

common control). A building, structure, facility, or installation means all of the pollutant-emitting activities which belong to the same industrial grouping.

UTM Coordinates means Universal Transverse Mercator geographic coordinates, specified by the UTM zone, horizontal coordinate and vertical coordinate.

VOC for the purposes of criteria pollutant emission inventory reporting means any compound of carbon (other than carbon monoxide, carbon dioxide, carbonic acid, metallic carbonates, metallic carbides and ammonium carbonate) which participates in atmospheric photochemical reactions. A company must report all reactive VOC emissions (including fugitive emissions.) **Do not report VOC emissions from the following which are non reactive:**

1 chloro-1-fluoroethane (HCFC-151a);
1-chloro 1,1-difluoroethane (HCFC-142b);
1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C4F9OC2H5);
1,1-dichloro 1-fluoroethane (HCFC-141b);
1,1-difluoroethane (HFC-152a);
1,1,1-trichloroethane (methyl chloroform);
1,1,1-trifluoro 2,2-dichloroethane (HCFC-123);
1,1,1-trifluoroethane (HFC-143a);
1,1,1,2-tetrafluoroethane (HFC-134a);
1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C4F9OCH3);
1,1,1,2,3-pentafluoropropane (HFC-245eb);
1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
1,1,1,2,3,4,4,5,5-decafluoropentane (HFC 43-10mee);
1,1,1,3,3-pentafluorobutane (HFC-365mfc);
1,1,1,3,3-pentafluoropropane (HFC-245fa);
1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
1,1,2,2-tetrafluoroethane (HFC-134);
1,1,2,2,3-pentafluoropropane (HFC-245ca);
1,1,2,3,3-pentafluoropropane (HFC-245ea);
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114);
1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OCH3);
2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OC2H5);
3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);

acetone;
 chlorodifluoromethane (HCFC-22);
 chlorofluoromethane (HCFC-31);
 chloropentafluoroethane (CFC-115);
 cyclic, branched, or linear completely methylated siloxanes;
 dichlorodifluoromethane (CFC-12);
 difluoromethane (HFC-32);
 ethane;
 ethylfluoride (HFC-161);
 methane;
 methylene chloride (dichloromethane);
 parachlorobenzotrifluoride (PCBTF);
 pentafluoroethane (HFC-125);
 perchloroethylene (tetrachloroethylene);
 trichlorofluoromethane (CFC-11);
 trifluoromethane (HFC-23);
 methyl acetate and perfluorocarbon compounds which fall into these classes:

- 1) Cyclic, branched, or linear, completely fluorinated alkanes;
- 2) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- 3) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
- 4) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

CALCULATIONS

The equations used to calculate the emissions for detailed 2002 inventory data must be included as part of the submittal for it to be considered complete. The calculations for pollutants submitted by individual totals for a site must be kept by sources for compliance purposes.

In general, companies have several options to calculate the emissions from a process or source:

- 1) the company can provide the calculation themselves, using any of the appropriate and approved estimation methods; or,
- 2) for small source operations ONLY (defined as a source with the potential to emit less than 1 ton per year) the company may estimate the emissions as 1 ton per year.

If AP-42 emission factors are used in the calculating of emissions, the most current edition of AP-42 must be used. Any inventories submitting

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
75252	Bromoform	110.34	0.06
74839	Bromomethane	82.76	0.04
7440439	Cadium	0.33	0.00
	Cadium Compounds	0.01	0.00
156627	Calcium cyanamide	10.61	0.01
105602	Caprolactam	21.22	0.01
133062	Captan	106.10	0.05
63252	Carbaryl	106.10	0.05
75150	Carbon disulfide	500.00	0.25
	Carbon oxide sulfide (COS)	0.00	0.00
	Carbon oxysulfide	0.00	0.00
56235	Carbon tetrachloride	219.17	0.11
463581	Carbonyl sulfide	0.00	0.00
120809	Catechol	488.06	0.24
133904	Chloramben	0.00	0.00
57749	Chlordane	10.61	0.01
7782505	Chlorine	31.83	0.02
79118*	Chloroacetic acid	4.88	0.00
108907	Chlorobenzene	500.00	0.25
510156	Chlorobenzilate	0.00	0.00
75003	Chloroethane	500.00	0.00
67663	Chloroform	500.00	0.25
74873	Chloromethane	500.00	0.25
107302	Chloromethyl methyl ether	0.00	0.00
126998	Chloroprene	500.00	0.25
16065831	Chromium	0.07	0.00
	Chromium Compounds	0.07	0.00
1333820	Chromium Oxide	0.07	0.00
18540299	Chromium VI	0.07	0.00
7440484	Cobalt	0.42	0.00
	Cobalt Compounds	0.42	0.00
62207765	Cobalt, ((2,2'-1(1,2-Ethanediy)lbis	0.42	0.00
	Coke Oven Emissions	0.00	0.00
544923	Copper(1)Cyanide	0.00	0.00
1319773	Cresols	466.84	0.23
1319773	Cresols/Cresylic acid (isomers and mixt.)	466.84	0.23
98828	Cumene	500.00	0.25
101144	Curene (AKA-4,4-Methylene Bis(2Chl	0.00	0.00
57125	Cyanide	0.00	0.00
	Cyanide Compounds	0.00	0.00
3547044	DDE	21.22	0.01
334883	Diazomethane	2.40	0.00
132649	Dibenzofurans	0.00	0.00
106934	Dibromomethane	0.00	0.00

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
78933	2-Butanone	500.00	0.25
532274	2-Chloracetophenone	6.79	0.00
126998	2-Chloro-1,3,Butad	500.00	0.25
79469	2-Nitropropane	500.00	0.25
91941	3,3-Dichlorobenzidine	0.00	0.00
119904	3,3-Dimethoxybenzidine	0.00	0.00
119937	3,3'-Dimethyl benzidine	0.00	0.00
101688	4,4-Diphenylmethanediisocyanate	1.08	0.00
101144	4,4-Methylene bis(2-chloraniline)	0.78	0.00
101779	4,4'-Methylene dianiline	17.19	0.01
92671	4-Aminobiphenyl	0.00	0.00
92933	4-Nitrobiphenyl	0.00	0.00
100027	4-Nitrophenol	0.00	0.00
75070	Acetaldehyde	500.00	0.25
60355	Acetamide	0.00	0.00
75070	Acetic Aldehyde	500.00	0.25
75058	Acetonitrile	500.00	0.25
98862	Acetophenone	500.00	0.25
107028	Acrolein	4.88	0.00
79061	Acrylamide	0.64	0.00
79107*	Acrylic acid	125.20	0.06
107131	Acrylonitrile	30.40	0.02
107051	Allyl chloride	63.66	0.03
62533	Aniline	161.27	0.08
7440360	Antimony	10.61	0.01
	Antimony Compounds	10.61	0.01
7783702	Antimony Pentafluoride	10.61	0.01
	Arsenic	0.07	0.00
	Arsenic Compounds (inorg. incldg. arsine)	0.07	0.00
1327533	Arsenic Trioxide	0.07	0.00
7784421	Arsine	3.38	0.00
1332214	Asbestos	0.00	0.00
71432	Benzene (including benzene for gasoline)	11.31	0.01
	Benzene Sol Org	0.00	0.00
92875	Benzidine	0.00	0.00
98077	Benzotrithloride	12.65	0.01
100447	Benzyl chloride	110.34	0.06
7440417	Beryllium	.01	0.00
	Beryllium Compounds	0.01	0.00
57578	beta-Propiolactone	31.83	0.02
92524	Biphenyl	27.59	0.01
111444	Bis(chloromethyl)ether	0.03	0.00
117817	Bis(2-ethylhexyl)phthalate (DEHP)	106.10	0.05
1375543	Bisphenol A Diglycidyl Ether	0.00	0.00

calculations using out-of-date factors will not be considered complete. Current AP-42 emission factors can be found on the Internet at: <http://www.epa.gov/ttn/chief/ap42/index.html>

If a company is not clear on the information necessary to calculate emissions, please contact Scott Hanks of the UDAQ Emissions Inventory staff at (801)536-4066. He is available to answer questions and assist with emission calculations.

Table I
Emissions Control Device Codes (NET)

Control Facility Code	Control Facility Description
000	Uncontrolled
001	Wet Scrubber - High Efficiency 95-99%
002	Wet Scrubber - Medium Efficiency 80-95%
003	Wet Scrubber - Low Efficiency < 80%
004	Gravity Collector - High Efficiency 95-99%
005	Gravity Collector - Medium Efficiency 80-95%
006	Gravity Collector - Low Efficiency < 80%
007	Centrifugal Collector - High Efficiency 95-99%
008	Centrifugal Collector - Medium Efficiency 80-95%
009	Centrifugal Collector - Low Efficiency < 80%
010	Electrostatic Precipitator - High Efficiency 95-99%
011	Electrostatic Precipitator - Medium Efficiency 80-95%
012	Electrostatic Precipitator - Low Efficiency < 80%
013	Gas Scrubber (general, not classified)
014	Mist Eliminator - High Velocity, i.e., v>250 ft/min
015	Mist Eliminator - Low Velocity, i.e., v>259 ft/min
016	Fabric Filter - High Temperature, i.e., T>250 F
017	Fabric Filter - Medium Temperature, i.e., F <T<250 F
018	Fabric Filter - Low Temperature, i.e., T<180 F
019	Catalytic Afterburner
020	Catalytic Afterburner w/ Heat Exchanger
021	Direct Flame Afterburner
022	Direct Flame Afterburner w/ Heat Exchanger
023	Flaring
024	Modified Furnace or Burner Design
025	Staged Combustion
026	Flue Gas Recirculation
027	Reduced Combustion - Air Preheating
028	Steam or Water Injection
029	Low Excess Air Firing
030	Use of Fuel with Low Nitrogen Content
031	Air Injection
032	Ammonia Injection
033	Stoichiometric Firing

034	Wellman-Lord/Sodium Sulfite Scrubbing
035	Magnesium Oxide Scrubbing
036	Dual Alkali Scrubbing
037	Citrate Process Scrubbing
038	Ammonia Scrubbing
039	Catalytic Oxidation - Flue Gas Desulfurization
040	Alkalized Alumina
041	Dry Limestone Injection
042	Wet Limestone Injection
043	Sulfuric Acid Plant - Contact Process
044	Sulfuric Acid Plant - Double Contact Process
045	Sulfur Plant
046	Process Change
047	Vapor Recovery System (including condensers, hoods, & other enclosures)
048	Activated Carbon Adsorption

Table I (Continued)
Emissions Control Device Codes (NET)

Control Facility Code	Control Facility Description
049	Liquid Filtration System
050	Packed-Gas Absorption Column
051	Tray-Type Gas Absorption Column
052	Spray Tower
053	Venturi Scrubber
054	Process Enclosed
055	Impingement Plate Scrubber
056	Dynamic Separator (Dry)
057	Dynamic Separator (Wet)
058	Mat or Panel Filter
059	Metal Fabric Filter Screen (Cotton Gins)
060	Process Gas Recovery
061	Dust Suppression by Water Sprays
062	Dust Suppression by Chemical Stabilizers or Wetting Agents
063	Gravel Bed Filter
064	Annular Ring Filter
065	Catalytic Reduction
066	Molecular Sieve
067	Wet Lime Slurry Scrubbing
068	Alkaline Fly Ash Scrubbing
069	Sodium Carbonate Scrubbing
070	Sodium-Alkali Scrubbing
071	Fluid Bed Dry Scrubber
072	Tube and Shell Condenser
073	Refrigerated Condenser
074	Barometric Condenser
075	Single Cyclone

Emission Inventory Improvement Preferred and Alternative Methods. Volume I, Introduction to the EIIP, and Volume II, Point Sources.

Table IV
HAPS DE MINIMIS LEVELS

HAPs that are not chargeable are shaded. Unless otherwise indicated by * in the CAS # column, these HAPs are also considered VOCs or PM₁₀.

CAS #	Pollutant	Minimum Emissions (lbs/yr)	Corresponding Tons/Yr
71566 *	1,1,1-Trichloroethane	500	0.25
79345	1,1,2,2-Tetrachloroethane	146.42	0.07
79005	1,1,2-Trichloroethane	500	0.25
35470445	1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene	21.22	0.01
75343	1,1-Dichloroethane	500	0.25
75354	1,1-Dichloroethylene	424.4	0.21
57147	1,1-Dimethyl hydrazine	0.53	0.00
120821	1,2,4-Trichlorobenzene	500.00	0.25
96128	1,2-Dibromo-3-chloropropane	0.00	0.00
106934	1,2-Dibromoethane	0.00	0.00
107062	1,2-Dichloroethane	500.00	0.25
78875	1,2-Dichloropropane	500.00	0.25
95476	1,2-Dimethylbenzene	500.00	0.25
122667	1,2-Diphenylhydrazine	0.00	0.00
106887	1,2-Epoxybutane	0.00	0.00
106990	1,3-Butadiene	31.11	0.02
542756	1,3-Dichloropropene	95.49	0.05
108383	1,3-Dimethylbenzene	1.58	0.00
1120714	1,3-Propane sultone	0.00	0.00
106467	1,4-Dichlorobenzene(p)	500.00	0.25
123911	1,4-Diethyleneoxide	500.00	0.25
106423	1,4-Dimethylbenzene	500.00	0.25
123911	1,4-Dioxane	500.00	0.25
106898	1-Chloro-2,3-epoxypropane	40.32	0.02
540841	2,2,4-Trimethylpentane	0.00	0.00
1746016	2,3,7,8-TCDD	0.00	0.00
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.00	0.00
94757*	2,4 Dichlorophenoxyacetic acid	0.00	0.00
95954	2,4,5-Trichlorophenol	0.00	0.00
88062	2,4,6-Trichlorophenol	0.00	0.00
94757	2,4-D, salts and esters	0.00	0.00
51285	2,4-Dinitrophenol	0.00	0.00
121142	2,4-Dinitrotoluene	4.24	0.00
95807	2,4-Toulene diamine	0.00	0.00
584849	2,4-Toulene diisocyanate	0.76	0.00
53963	2-Acetlaminofluorene	0.00	0.00

	Estimation Methods: Preferred (P) or Alternative (A)						
Source Category	Material Balance	Emission Factors	Source Testing	CEM data	Emission Models/ Predictive Monitoring ^a	Fuel Analysis	Engineering Calculations
Miscellaneous Metal Parts, Surface Coating	P, A	A	P, A		A		
Oil & Gas Field Production & Processing		P, A	A	A	P		
Paper Coating, Surface Coating	A	P, A	A		P		
Plastic Products Manufacturing	P, A	A	P, A		A		
Plastic Parts, Surface Coating	P, A	A	P, A		A		
Secondary Metal Processing		P, A	P, A	P, A			
Semiconductor Manufacturing	P	A	P, A				A
Ships, Surface Coating	P, A	A	P, A		A		
Wastewater Collection and Treatment	A	A	A		P		A
Wood Furniture, Surface Coating	P, A	A	P, A		A		

^a Predictive emission monitoring is an estimation method where emissions are correlated to process parameters based on demonstrated correlations. Reference:

076	Multiple Cyclone w/o Fly Ash Reinjection
077	Multiple Cyclone w/Fly Ash Reinjection
078	Baffle
079	Dry Electrostatic Granular Filter
080	Chemical Oxidation
081	Chemical Reduction
082	Ozonation
083	Chemical Neutralization
084	Activated Clay Adsorption
085	Wet Cyclonic Separator
086	Water Curtain
087	Nitrogen Blanket
088	Conservation Vent
089	Bottom Filling
090	Conversion to Variable Vapor Space Tank
091	Conversion to Floating Roof Tank
092	Conversion to Pressurized Tank
093	Submerged Filling
094	Underground Tank
095	White Paint
096	Vapor Lock Balance Recover System
097	Installation of Secondary Seal for External Floating Roof Tank

Table I (Continued)

Emissions Control Device Codes (NET)

Control Facility Code	Control Facility Description
098	Moving Bed Dry Scrubber
099	Unspecified (describe control facility)
101	High Efficiency Particulate Air Filter (HEPA)
102	Low Solvent Coatings
103	Powder Coatings
104	Waterborne Coatings
105	Process Modification - Electrostatic Spraying
106	Dust Suppression by Physical Stabilization
107	Selective Noncatalytic Reduction for NOx
108	Dust Suppression - Traffic Control

Table II

Emissions Estimate Method Codes

Estimate Code	Estimate Method Description
00	No Code Given
01	CEMs (Continuous Emission Monitoring System).
02	Engineering judgement.
03	Material Balance.
04	Stack Test.
05	EPA Speciation Profile.
06	State/Local Speciation Profile.

- 07 Manufacturer Speciation
- 08 EPA Emission Factor
- 09 State/Local Emission Factor
- 10 Site Specific Emission Factor
- 11 Vender Emission Factor
- 12 Trade Group Emission Factor

Note: The numbering of the estimate codes has been modified due to EPA's move from AIRS to NET in 1999. Be sure to review and correct the codes in your submittal as needed.

* The most up-to-date version of AP-42 can be found on the EPA Homepage on the Internet at:
<http://www.epa.gov/ttn/chief/ap42etc.html>

Table III
Valid Estimating Method Codes for Specific Processes

Estimation Methods: Preferred (P) or Alternative (A)							
Source Category	Material Balance	Emission Factors	Source Testing	CEM data	Emission Models/ Predictive Monitoring ^a	Fuel Analysis	Engineering Calculations
Aircraft Manufacturing, Surface Coating	P, A	A	P, A		A		
Appliances, Surface Coating	P, A	A	P, A		A		
Automobiles and Light-duty Trucks, Surface Coating	P, A	A	P, A		A		

Estimation Methods: Preferred (P) or Alternative (A)							
Source Category	Material Balance	Emission Factors	Source Testing	CEM data	Emission Models/ Predictive Monitoring ^a	Fuel Analysis	Engineering Calculations
Automobile Refinishing, Surface Coating	P, A	A	P, A		A		
Boilers		A	P	P		P	
Equipment Leaks		A	A		P		
Flat Wood Product Manufacturing, Surface Coating	P, A	A	P, A		A		
Heavy-duty Truck Manufacturing, Surface Coating	P, A	A	P, A		A		
Hot-Mix Asphalt Plants		P	P	A	A	P	
Magnet Wire, Surface Coating	P, A	A	P, A		A		
Metal Cans, Surface Coating	P, A	A	P, A		A		
Metal Coil, Surface Coating	P, A	A	P, A		A		
Metal Furniture, Surface Coating	P, A	A	P, A		A		